

## **Relationship between depth, sediment, latitude, and the structure of benthic infaunal assemblages on the mainland shelf of southern California**

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### **ABSTRACT**

A regional benthic survey was conducted in 1994, and the data were used to assess the relationship among three habitat factors (depth, sediment grain size, and latitude) and the distribution of benthic infaunal assemblages on the southern California coastal shelf. Benthic samples were collected with 01 m<sup>2</sup> Van Veen grab from 251 sites on the continental shelf (10—200 m deep) from Point Conception, California, to the United States—Mexico international border. The relationship between habitat and assemblages was investigated by conducting a Q-mode cluster analysis to define groups of stations with similar species composition and then examining whether differences were present in physical habitat attributes among those groups of stations. Analysis of data from 175 uncontaminated sites yielded four habitat-related benthic infaunal assemblages along the southern California coastal shelf; a shallow-water assemblage from 10-32 m, a mid-depth assemblages between 32 and 115 m, and two deep-water (115-200 m) assemblages, one in fine and one in coarse sediments. These empirically defined points in the depth and sediment grain size gradients can be used to define reference habitats for the development of biocriteria. Benthic abundance and diversity were greatest in the mid-depth assemblage, conforming to predictions for benthic assemblages in regions of upwelling. Within the 500 km of coastline examined, latitude was not an important factor in defining assemblages.

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